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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/315,068	05/20/1999	TOSHIRO HAYAKAWA	Q54431	5982

7590 05/23/2003

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[REDACTED] EXAMINER

ZAHN, JEFFREY N

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/315,068	HAYAKAWA ET AL. <i>[Signature]</i>	
	Examiner	Art Unit	
	Jeffrey N Zahn	2828	

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 August 2002 and 18 December 2002.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2 and 5-19 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Paul IP
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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

The Applicant has stated that the Preliminary Amendment submitted 09 August 2002 should have been considered because the Office Action last sent was dated 23 August 2002. I assure the Applicant that the Office Action was written prior to this Preliminary Amendment being entered as part of the Application. As I stated on August 12, 2002, the Office Action had been written and was awaiting approval from my Supervisor. The date of 23 August 2002 that appeared on the Office Action was a consequence of a minor correction required to the Office Action per my Supervisor; our Office Action Software automatically updates the date of the Actions to the day of printing. In addition, this Preliminary Amendment was not entered as part of the Application on the file wrapper; consequently, I was not aware at the time the "minor correction" was made that this preliminary amendment was officially part of the Application.

In accordance with normal procedure, the Preliminary Amendment filed 09 August 2002 and the Amendment filed 18 December 2002 were considered for purposes of this examination.

Claim Rejections - 35 USC § 112

Claims 1-2 and 5-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 1 and 11, and all claims that depend therefrom it is not clear 1) if the entire active region is formed of InGaAsP as claimed, 2) what part of the upper cladding layer is removed in relation to the remainder of the semiconductor laser, i.e. at the peripheral of the device, etc., and 3) what the configuration of the cladding layer is after the upper waveguide is removed, i.e. a ridge structure as claimed in Claim 2.

In addition, to overcome indefiniteness issues, the claimed subject matter must include the structural details of the cladding/waveguide interface that the Applicant has disclosed as part of the claimed invention.

Claims 1-2 and 5-19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: 1) the thicknesses of the waveguide and cladding layers that enable the selective removal of the waveguide layer to the cladding layer interface and 2) the relationships of the cladding and waveguide layers, i.e. as discussed above.

Note: For purposes of this examination, the interface of the upper cladding layer and upper optical waveguide as claimed, is interpreted very broadly because the claim language is not clear or specific regarding the limitations this interface includes. Consequently, the claims do read on the Chen et al. reference applied below as viewed with the Applicant's Admitted Prior Art.

Claim Rejections - 35 USC § 103

Claims 1-2, and 5-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant's Prior Art admissions and in view of Chen et al. (US 5982804).

Regarding Claim 1-2 and 5-10, the Applicant admits (Jepson Claim style) the prior art includes a semiconductor laser comprising an active region which includes at least a quantum well layer and upper and lower optical waveguide layers on opposite sides of the at least a quantum well layer, the active region being formed of $\text{In}_x\text{Ga}_{1-x}\text{As}_y\text{P}_{1-y}$ (where $x=0-1$, $y=0-1$) and upper and lower cladding layers (8)(2) formed of AlGaAs on opposite sides of the active region (claim 1).

Chen et al. teaches a SCH laser (Fig 18) where one of the optical waveguide layers is not smaller than .25um in thickness (col. 8, lines 16-57), and a part of the upper cladding layer (12) on the upper waveguide layer is selectively removed up to the interface of the upper cladding layer and the upper optical waveguide layer (col. 4, line 28- col.6, line 20; see also Fig. 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Chen et al. with the Applicant's admitted prior art to include a waveguide layer of approx .45um and selectively etching the upper cladding, as claimed, to optimize lateral coupling efficiency and increase yield of manufacturing as taught by Chen et al. (col. 9, lines 44-55)

Response to Arguments

Applicant's arguments with respect to claims 1-2 and 5-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey N Zahn whose telephone number is 703-305-3443. The examiner can normally be reached on M-F: 8:30-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



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Jeffrey Zahn
May 18, 2003